



FOREST HEALTH PROTECTION Pacific Southwest Region

FHP Report No. C06-4

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March 22, 2006

Bark Beetle Potential in Slash Pilings Groveland Ranger District, Stanislaus National Forest

Locations

On March 1, 2006 Beverly M. Bulaon (Zone entomologist) accompanied Vicki Smith (Contract Officer Representative), Doug Elliott (Groveland Inspector/Sale Administrator), Jim Serra (Groveland Inspector), and Kathleen Castro (Groveland Fuels Officer) to examine slash piles generated from logging activity on the Granite Sawlog and Biomass Removal Project, Groveland Ranger District. District personnel were concerned about the potential for tree mortality by bark beetle infestations moving from slash piles into leave trees before piles would be treated (burning or chipping planned). Slash piles already generated have exceeded the 45-day limit for required treatment as stated in the contract. Contractors of the sale were proposing treatment of the piles later in the fall season of this year.

The Granite Sawlog and Biomass Removal Project encompass roughly 3200 acres, separated into various units around Granite Creek. Harvesting in most units is performed by whole tree logging methods, leaving limbs and other debris to be piled for slash treatment. Four sites were visited as representative of slash pilings for the entire project. The first site (Unit 80, off Cherry Lake Road) is a 30-year-old plantation predominantly comprised of ponderosa pine. While piles were generated back in mid-January, slash still appeared very fresh possibly due to snow cover (*see Figure 1*). The second and third sites were also plantations of ponderosa pine. Final clean-up was still continuing on these sites. Piles were smaller and fire lines around piles were not cleared. Slash was generated three weeks prior and needles were still green (*see Figure 2*). Residual trees in these three sites appeared to be growing vigorously and mechanical damage from logging was negligible. The last site was a mixed conifer natural stand of various species that was thinned from below for saw timber and biomass. All treatments were intended to reduce fuel loading and improve stand conditions. All piles

SOUTH SIERRA SHARED SERVICE AREA

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examined did contain some large diameter logs that could provide for successful brood development.

Figure 1. Slash piles at site 1, March 1, 2006.



Figure 2. Slash piles at site 2, March 1, 2006.



Discussion and Management Recommendations

In section C.12 under *Removal Methods and Standards* of the contract:

“The contractor must not leave included timber or biomass untreated on the ground for more than 20 days. The Contractor shall dispose of slash and log piles on landings within 45 days of placement there during the period *Ips* beetles are most active (typically February through October).”

The *Ips* beetle of most concern in this area is *Ips paraconfusus*, California five-spined engraver. When conditions are favorable, *Ips paraconfusus* can rapidly infest and reproduce, with a new generation completing development within 45 to 60 days. Thus, several overlapping generations may be produced within a very short time. *Ips* beetles typically infest weakened, stressed trees of smaller diameter or recently downed wood which makes slash piles ideal for population build-up. Emerging broods may move into nearby standing hosts if existing slash material is exhausted. Outbreaks in standing trees usually do not last beyond one year, but can be prolonged under stressful conditions, such as drought.

Prevention of beetle migration into residual trees can be accomplished with minimal loss, if treatment of slash is timely and thorough. Wood utilization that is unfavorable for brood production, or maintaining low beetle populations are preferred management options. It is highly recommended that slash only be generated during the fall or early winter to allow wood sufficient time to dry and become unsuitable for infestation. If slash must be generated in the early spring to summer, methods such as crushing, burning, chipping, scarring the bark, or chopping into small pieces are necessary treatments. Lopping, scattering limbs and boles into wide openings under direct sun help accelerate wood drying. Spacing of piles several yards away from residual trees also help prevent in emerging brood migration. It is preferential to pile slash in non-host locations or large clearings that receive full sun. This information is reiterated under Section J, Exhibit C, part 8b)2, Page 10 of Limited Operating Periods/Management Requirements.

At the time of the evaluation, no beetle activity was observed at any of the pilings. However, *Ips paraconfusus* is recorded to fly as early as March in California, weather permitting. Distance between piles and residual stands were variable, but far enough that attack spill-over from incoming beetles would be lessened. The most efficient strategy would be to treat piles as soon as possible, rather than wait for infestation to occur. Piles appear large enough at visited sites to retain beetles within them for the next couple months, but waiting any later for treatment would be unadvisable. Direct control of beetles once they have reached epidemic levels is difficult and costly.

Burning piles would directly kill any beetles that may have already infested the slash and quickly dry out the phloem. However, wood within piles must be burned to a condition that would render it unsuitable for brood production. Needles within older piles were still green, but Kathleen stated that piles appeared dry enough to burn completely if ignited now. If burning is not an option, other treatments that would hasten wood drying are acceptable, but risky given the time of the year.

Concerns about other insect infestations as a consequence of the slash piles were also discussed. Western pine beetle and mountain pine beetle are also strongly attracted by terpenes released by recently cut ponderosa pines. However, they are typically not slash-breeding insects and do not prefer small diameter logs. Red Turpentine beetles may attack standing trees that have been injured from machinery or surrounding tree felling. Red turpentine beetles can be easily prevented by minimizing damage to residual trees and postponing underburns in treated areas for a few years after initial treatment.

If anyone should have additional questions, or need for assistance, please do not hesitate to contact me.

/s/ *Beverly M. Bulaon*

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References

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Scott, Stephen 1990. Ips Beetles in California (Coleoptera: Scolytidae). Tree Notes, No. 8. California Department of Forestry and Fire Protection.

